First day of class:

1. Introduce scalars and vectors.

2. Cite pressure, density, and salinity as examples of scalars, and velocity and force as examples of vectors.

3. Go over Example 8.2.1 (Emphasize that the flow in this example is called "Simple Shear" or "Shear". Draw attention to the analogy between this flow and the flow generated by wind stress on the surface of the ocean.)

4. Introduce dot product and cross product of vectors.

5. Prove that $\frac{d}{dt}(a.b) = a'.b + a.b'$

6. Start talking about units and dimensions if time permits.